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Systematic review and meta-analysis of antihypertensive medication adherence interventions using electronic monitoring

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Purpose: Medication non-adherence prevents patients from receiving the benefit of otherwise effective pharmacological therapy for hypertension. While many varied interventions have been tested to improve antihypertensive medication adherence, the overall and relative efficacy of the strategies developed to date is not known.
Methods: We systematically reviewed randomized controlled trials testing the efficacy of medication adherence interventions for adults self-administering blood pressure-lowering medication. Our review included only studies which measured adherence by electronic monitoring, which provides the greatest amount of detail on patients' dosing histories. Data from the studies were independently coded by two researchers, and random-effects meta-analysis was conducted for those studies reporting sufficient data for calculation of effect size.
Results: Nine studies met our inclusion criteria (publication range: 1979—2010). Only seven studies reported sufficient data for inclusion in a meta-analysis. The mean adherence effect size (Cohen's d) was 0.377 (S.E. 0.059). Our review of results indicates that the clinical effect of antihypertensive adherence interventions remains small. Effects observed are often from preventing the lowering of adherence over time seen in control groups, rather than due to increasing adherence from baseline.
Conclusions: Medication adherence interventions have the potential for creating positive improvement in patients' antihypertensive adherence. Additional high-quality primary studies are needed to develop and test interventions better designed to generate greater improvement in adherence, leading to greater impact in measurable clinical outcomes. Effective interventions should then be moved into translational research and tested for effectiveness in 'real-life' clinical practice environments.